

MIS2502: Exam 1 Study Guide

The exam will be a combination of multiple-choice and short-answer questions. It is a closed-book, closed-notes exam. You will NOT be able to use a computer during the exam.

The following is a list of items that you should review in preparation for the exam. Note that not every item on this list may be on the exam, and there may be items on the exam not on this list.

Part one: Data, Information and the Information Architecture of an Organization *(Focus on concepts)*

- What is the difference between data and information? Give examples.
- What is a transaction in business? Give examples.
- What is the difference between transactional data and analytical data? Give examples.
- What is relational database? And what is the primary goal of relational database?
- What is the difference between transactional database and analytical data store?

Part two: Relational Data Modeling

(Focus on application e.g. the in-class activities and assignment)

A. Entity Relationship Diagram (ERD)

- Be able to draw an ERD based on a scenario description using the correct symbols and cardinality
- Be able to interpret ERDs
- Identify and define entities, relationships, and (relationship) attributes from a problem statement
- Identify primary key and non-key attributes
 - ✓ Make sure you have a primary key for every entity
- Understand cardinality
 - ✓ Maximum cardinality: one-to-one, one-to-many, many-to-many
 - ✓ Minimum cardinality: optional or mandatory (i.e., 0 or 1)
- Identify when attributes describe entities and when they describe relationships

B. Schema

- Be able to draw the corresponding schema of an ERD
 - ✓ Identify tables based on entities and relationships
 - ✓ Understand and implement primary key/foreign key relationships
 - ✓ Decomposing many-to-many relationships in an ERD into one-to-many relationships in the schema
- Best practices for normalization

- Given data from two tables, be able to draw the results of a join of those tables with the data correctly “matched up” (see the examples from the slides)

Part three: Extracting Data from Relational Database with SQL

(Focus on using SQL to extract data from a single table)

- Given a schema of a database, be able to create a SQL statement to answer questions
 - ✓ e.g., In what state does customer Bob Smith live?
 - ✓ How many people live in each state?
- You will be provided the general syntax of the SELECT statement, but you will need to know how to apply it!
- Understand how to use
 - SELECT ... FROM
 - DISTINCT
 - WHERE
 - GROUP BY
 - ORDER BY (ASC/DESC)
 - COUNT, AVG, MIN, MAX, SUM
 - LIMIT

Note: Join and subselect will be on the SECOND exam. Creating, updating, and deleting tables and rows will also be on the SECOND midterm exam.